AgriSafetyNet

Agricultural Safety Through Lifelong Learning

2019-1-SK01-KA202-060645

Module 7
NEW & EMERGING RISKS AFFECTING OCCUPATIONAL HEALTH & SAFETY IN THE AGRICULTURAL SECTOR

Co-funded by the Erasmus+ Programme of the European Union

1. Major future trends and changes in agriculture & forestry:

The following sections set out the main trends affecting agriculture and forestry with a specific focus on the resulting technological and organisational changes.

I. Technological Innovation

Agriculture is one of the sectors with the least technological development and uptake. In the current Common Agricultural Policy (CAP) reform national governments committed to create a conducive environment for digitalisation and smart farming. This process is expected to bring **many benefits** including an increase of agricultural production, a reduction of production costs and an increased attractiveness of the sector, especially for the youth. But also, some **negative impacts**: a reduction of jobs in the sector, a decline in small farms struggling to make investments and remain competitive, more dependency of farmers on large multinationals and data/tech companies.
The digitalisation of the sector will bring significant organisational challenges, for example the need to **reskill workers in IT-based systems and less reliance on seasonal and temporary labour**.

II. Climate change

Agriculture is one of the sector most contributing to mitigating climate change while being severely affected by it. Besides climate change itself, the agriculture sector is indirectly impacted by environmental protection measures including for example the EU's commitment to reduce pesticide use by 50% before 2030 as laid in the Farm to Fork Strategy. Climate change and environmental degradation will imply **technological changes**, such as the need to make investments for a more efficient water use or to adapt one's crops choice to grow or animal selection to breed to the changing climate conditions. Alongside technological changes, there will be **organisational challenges**: farmers will be forced to manage more frequent and increasingly unpredictable risks negatively impacting their production, increasing number of animal diseases, etc…

III. Food and energy demand

The world's population is expected to grow to almost 10 billion by 2050, which will increase the demand for agricultural production by 50 % (FAO, 2017). This increased demand for food may lead to higher EU food prices leading to potential **food insecurity**. At the same time, actions towards reducing **food loss and waste** are increasing. This will also affect farming patterns. Last but not least, energy production will continue to compete with food production. These global changes will pose organisational and technological challenges for farmers forced to adapt their farming practices and modernise production and storage facilities to reduce food loss on the farm or to shift their production to alternative proteins.

IV. Trade and economy

Agriculture plays a significant role in global trade, with the EU being the world's largest food exporter. Being globally traded, agricultural products are impacted by volatile price fluctuations on international commodity markets and currency fluctuations. Moreover, agriculture, like all sectors, is not immune to global economic downturns. The 2008 recession reduced the availability of credit in the sector, especially for young farmers. The effects of the COVID-19 economic recession will still need to be assessed. Developments in both trade and economy will result in many organisational changes in the sector. For example, with exports going up and global supply chains disrupted in the context of COVID-19 crisis, the unpredictability of the farming sector is increasing, and some farmers will have trouble in **managing large stocks of agricultural goods**. **Small-sized farm managers** in particular will find it increasingly difficult to invest in infrastructure developments, new technologies and other innovations.

V. Policy and people

The agricultural sector is characterised by a predominance of part-time working, mainly family-based, with a low rate of women in managing positions. The ageing agricultural workforce and limited generational renewal are key challenges for the sector with only 5.1 % of farmers being younger than 35 years (Eurostat, 2018a). Temporary or seasonal workers are more frequently found in agriculture than in other sectors. Long working hours tend to dominate in the sector.

Labour market trends will result in a series of mainly organisational changes in the sector. From an organisational perspective, there will be a move towards larger agricultural undertakings owing to the gradual **reduction in the number of small farms (and family workers).** The role of women in managing positions is progressively increasing and there is a move towards **pluri-activity** (related to the high-level of part-time work). One of the most important organisational changes to affect farming and forestry is the lack of generational renewal and continuous rural depopulation.

2. Implications for the occupational health and safety of farmers

The following section focuses on the impacts of the main trends affecting agriculture and forestry on farmers' health and safety.

I. Technological innovation: health and safety implications

Technological innovation and smart farming developments have the **potential to reduce occupational safety and health (OSH) risk factors** and improve the working environment. Specifically, by:

- Reducing workload through substituting labour with capital;
- Simplifying work systems and improving process control and safety systems management, improving work organisation;
- Preventing MSDs through ergonomic improvement;
- Reducing occupational exposure to hazardous substances (e.g. precision spraying equipment) and noise;
- Improving machine and vehicle safety;
- Improving work-life balance;
- Increasing gender parity in agriculture as a result of fewer physical demands, ergonomic design and more flexible work arrangements.

However, new technologies alone will not bring safety and health improvements without adequate training in effectively using the machines and reinforcing the general prevention culture in the sector.

Moreover, technological innovation can also pose **several challenges and threats**, such as:

- More loneliness of workers (as a consequence of the reduction of the workload and the number of workers necessary to carry out certain agricultural tasks);
- Monotony and stress associated with the introduction of new automated technologies;
- Risk of hacking and interference, possibility of confidential data being stolen;
- New ethical concerns (new wearable technologies that monitor workforce performance and pace).

II. Climate change: impacts on occupational health and safety

A successful adaptation of the agricultural sector to climate change requires constant **learning and flexibility to accept and adapt to change**. However, the fact that the weather will be unpredictable in the long run reduces control that farmers and foresters have, exerting more pressure on them adding to psychosocial stress factors already existing in the sector.

Climate change poses many challenges affecting farmers' occupational health. Those challenges include:

- **Extreme weather events and fires**: It is not only the immediacy of these events that affects farmers and foresters but the clean-up in the aftermath can also be hazardous, needing caution, knowledge and high operational skills;
- **Heat exposure**: exposure to high temperatures can lead to physiological and psychological changes decreasing workers' performance. One of the OSH consequences of climate change and increased heat impacting farmers for example during nighttime work or in their early morning and late evening work;
- **Exposure to solar ultraviolet radiation**: farmers and fishermen are among the workers at the highest risk of developing skin cancer, since they are exposed to the sun on a daily basis. Therefore, it is essential to manage the adverse effects of sunlight by increasing awareness and providing information;
- **Animal and insect-borne disease as well as invasion of predatory species**;
- **Exposure to dust and pesticides**: rising temperatures are expected to increase the development and growth of pests and in consequence is likely to increase the use of pesticides;
- **Impacts on mental health**: many studies show that the stress that climate change causes to farmers and foresters is also linked to psychological disorders such as anxiety, mood disorders, stress, depression or the feeling of hopelessness. Similarly, fear, despair, suicide ideation, increased drug abuse and heat-related deaths have been linked to adverse climatic changes. However, the interlinkage between climate change and farmers' mental health is still under-investigated.

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III. Trade and economy: occupational health and safety considerations

Trade is often considered from the economic perspective in most policy areas. However, there are often public health and OSH aspects that are overlooked, particularly those involving **biological agents and invasive species**.

Moreover, the working conditions related to food products imported to the EU may also differ. Agricultural organisations have raised concern about weaker environmental and food safety standards for food imports, and OSH standards in non-EU countries can also be significantly lower.

The increase in farm size and the consequent reduction of the number of small farms mentioned before may have a significant impact on farm safety. As farm sizes increase, there will also be a raise in investment in new and inherently safer technologies, including more structured and professional OSH services. However, the growing economic and digital divide between larger more profitable farms and smaller less well-resourced farms is likely to disproportionately affect safety and health levels on smaller farms that will find it increasingly difficult to invest in infrastructure developments, new technologies and (OSH) training.

IV. Labour market trends: impacts on occupational health and safety

The agricultural workforce has several structural characteristics that strongly influence safety and health risks in the sector.

- ***Temporary and seasonal workers:*** Over 30 % (53) of all employees in agriculture are in temporary employment. An ILO report (Quinlan, 2015) highlighted that temporary workers are at increased risk of work-related injury and illness, and temporary employment is associated with a number of adverse OSH outcomes.
- ***Migrant workers:*** Between 2011 and 2017, for the whole EU there was an increase from 4.3% to 6.5% in the share of migrants in total employment in the agricultural sector (Natale et al., 2019). Migrant workers suffer higher levels of work-related accidents and disease.
- ***Part-time nature of farming:*** Part-time farming and pluri-activity can result in long working hours and inadequate rest, leading to OSH problems.
- ***Self-employed farmers:*** self-employed farmers represent the majority of the EU agricultural workforce. There is an acute problem of underreporting agricultural illnesses among self-employed farmers. In addition to this, the EU through its OSH Framework Directive on safety and health at work does not cover the self-employed workforce.
- ***Farming as a family business:*** Family workers prevail with 9 in every 10 (89.5 %) people who work regularly in agriculture in the EU being the sole holder (farmer) or members of their family (61%). The resulting informal nature of employment relationships means that OSH roles and responsibilities are generally less professional.
- ***Role of women in farming:*** Women account for 35 % of the agricultural workforce and 41.8 % of family workers (ILO, 2016). Gender aspects in OSH practices in the sector are often underestimated. Work equipment is still designed for the average-sized male worker and takes less account of the ergonomic needs of women. EU-OSHA recommends fostering women's participation in OSH decision-making in order to improve women's safety and health at work.

- ***Retirees and farmers over 65:*** Farmers aged over 65 years represent 32 % of the EU agriculture workforce. Older farmers are more exposed to agricultural illnesses also because they tend to invest less in the farm development and in new technologies, as well as often have in general significantly lower levels of training.
- ***Young workers:*** EU-OSHA has highlighted that new or young workers are more vulnerable when it comes to OHS. This vulnerability derives from a series of factors in the workplace including the lack of working experience; the lack of familiarity with the job and the work environment; reluctance to raise concerns; being unaware of existing or potential risks; lack of maturity; and eagerness to impress workmates and managers.
- ***Long working hours:*** Long working hours tend to prevail in the agriculture sector. Farm workers on average work 46 hours per week which is significantly more than the EU-28 average of 38 hours. Working more than 12 hours per day involve a 147 % increase in occupational injury studies shown (Salminen, 2016).
- ***Rural depopulation:*** little attention has been paid to the link between rural depopulation and OSH. In many rural areas there is limited access to rural health services, such as OSH health monitoring, as well as OSH advisory, training and support services. Moreover, emergency response times in the event of accidents are usually longer in rural areas.
- ***Stress and psychosocial risks:*** farming is one of the most stressful occupations, with a high depression and suicide rate. According to a recent survey of the mental health and well-being of Welsh farmers, the key mental health challenges for the sector include the viability of the farming sector; succession planning; regulation, administration and digitalisation; farmer health; farming culture and self-reliance; and isolation and loneliness (Davies et al., 2019). In the picture below, factors contributing to the stressful condition of farmers are shown.

Figure 1 Stress factors for farmers.
Source: IMAZ

3. Let's hear from farmers!

I. Samuel Masse: Climate change & occupational health and safety

Samuel Masse is a winegrower from Southern France. He works with his brother on what was once their grandparents' farm and has 20 hectares of organic vines in "PDO Languedoc" and "PGI Pays d'Oc". Samuel studied viticulture and oenology and did internships in the USA on vineyard management. He got involved in Jeunes Agriculteurs (JA), the French young farmers' organisation, as Secretary General and then President of JA Hérault, and Treasurer of JA Languedoc Roussillon. In 2018, he joined the national Board of JA in charge of European and international issues, the food chain and quality labels. In 2019, he was elected Vice-President of the European Council of Young Farmers (CEJA) and from January 2021 to June 2021, he was the President of CEJA.

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What do you think are the consequences of climate change specifically on the occupational health and safety of farmers?

- *The worst consequences are on **mental health**. Extreme and severe weather events, like heat waves or frost, impact our everyday life. It affects you psychologically: you are more stressed, because you cannot predict. You don't know what will come the following years. My grandparents used to say: 'This year is a bad year, but we know that next year will be better or that one bad year is followed by three good ones". It is not the case anymore. This affects the way we see our future. The fact that we are young means that we are probably more resilient and a bit less worried, but it is hard. We just have to face the reality and act sometimes promptly when bad climate events happen. Moreover, it is **getting harder to get insurances** because they often do not cover extreme climate events. Additionally, in a sector like winegrowing, uncertainty is very high. In viticulture, you have long-term production plans, you cannot easily change your crops variety. You could opt for a variety resistant to droughts but at the same time you don't know if the market and consumers will appreciate them. All these uncertainties generate **stress and often tensions in your private life**. Moreover, climate change has impacted the way society perceives agriculture and farmers. Society asks farmers new things (for example reducing pesticides) that put additional pressure on us.*

- *Climate change has consequences on **physical health**, too. When extreme events happen, you end up **working more**. If there is more rain, you need to spray more. It means staying a lot of hours more in the tractor. It affects the way that you sleep, you are more tired. An extreme climate event totally changes the way you manage your farm. Also, to anticipate trade-offs you need to take precautionary measures that require extra work. For example, cutting bushes, to prevent fires. Or, with climate change, we have more wild boars, and to protect our farm we put more fences. This has a direct impact in terms of labour.*

II. Iris Bouwers: Technological innovation & occupational health and safety

Iris Bouwers is a young farmer from the Netherlands. She has a mixed farm with arable land and fattening pigs in the North-East part of the Netherlands. The farm was created in 1962 by her grandparents. In 1993 her dad took over it and further developed it thanks to the CAP funds. In the last 5 years, Iris farms together with her parents and she hopes to take over in the future. Besides her farming activity, Iris is representing farmers as Policy Advisor for International Policy Affairs for the Dutch Agricultural and Horticultural Association.

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What do you think are the impacts of technological innovation specifically on the occupational health and safety of farmers?

- *Technology helps when it comes to **protecting farmers from being exposed to plant protection products**. When you spray them, you are in the tractor, closed and you don't breathe them, so in the application phase there is basically no risk. But the risks increase when you put it in the tank. You try to be as distant as possible from the plant protection products, but when you put them in the tank, you are close. Some farmers use masks and gloves to protect, but they are not very safe. In the Netherlands, there is a new innovation: an automatic system which puts the container on a tank where the Phyto-sanitary products and the water are. You don't have to pour it yourself, you put it on it and it measures how much product is in there and it opens/closes automatically. It is a great innovation! Now it is a choice of the farmer to invest in such technologies, but it is not a standard, accessible to all farmers. We should increase support on technology that help farmers to protect their health and safety.*
- *Technological innovation can have downsides. For example, it can **break or stop**. If you use technology for example for animal feeding or ventilation in stables, the impacts of these shortfalls can be huge. For example, when it comes to automatic animal feeding, it is really safe. But you need to put your trust in those machines. If something goes wrong, for example the machine breaks down, the electricity breaks down, your animals are without food. When it comes to ventilation, if electricity goes off, and you are not in the stable, your animals will die and it can be a question of 30 minutes.*
- *Technological innovation creates a **need to to reskill workers in IT-based systems**, changing the way farmers invest their time. Especially for young farmers in the future, they will have to spend a lot of time in learning about precision farming, GIS, robotics, etc... I can imagine farmers will be more dependent on technology and they will have less time to invest in learning about farming practices, soil health, etc…*
- *Technological dependency can affect **mental health**. I thought that when the amount of physical labour reduces, everything would be better. But no, the stress is there. You are dependent on the system or if the system breaks down you have a lot of stress. Additionally, you often in such cases need to fight with assurance companies, not eager to pay.*
- *Technology poses questions **over big data and data protection**. There is a **risk of hacking and interference and a possibility of confidential data being stolen**. For example, in my case, I have pigs and I distribute my data to the buyers of pigs. It is something I can't change. If I want them to buy my pigs, I am obliged to give them my data. In this way, I give a lot of power away.*

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Defoin

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CEJA

The Polish Farm Advisory and Training Centre

Hof und Leben
Jeder Tag ein Vermögen.

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